Exelon Generation®

10 CFR 50.73

NMP1L3305
August 2, 2019

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Nine Mile Point Nuclear Station, Unit 1
Renewed Facility Operating License No. DPR-63
Docket No. 50-220

Subject: NMP1 Licensee Event Report 2019-003, Revision 1, Manual Reactor Scram Due to Pressure and Power Oscillations

The original NMP1 LER 2019-003 was submitted June 28, 2019. Enclosed is NMP1 Licensee Event Report (LER) 2019-003, Revision 1, Manual Reactor Scram Due to Pressure and Power Oscillations. This revision is to provide additional details on the cause of the event and the corrective actions following completion of the root cause analysis.

There are no regulatory commitments contained in this letter.

Should you have any questions regarding the information in this submittal, please contact Brandon Shultz, Site Regulatory Assurance Manager, at (315) 349-7012.

Respectfully,

Todd A. Tierney

Todd A. Tierney
Plant Manager, Nine Mile Point Nuclear Station
Exelon Generation Company, LLC

TAT/DJW

Enclosure: NMP1 Licensee Event Report 2019-003 Revision 1, Manual Reactor Scram Due to Pressure and Power Oscillations.

cc: NRC Regional Administrator, Region I
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COMMITMENTS IDENTIFIED IN THIS CORRESPONDENCE
• None

Enclosure

NMP1 Licensee Event 2019-003, Revision 1
Manual Reactor Scram Due to Pressure and Power Oscillations

Nine Mile Point Nuclear Station, Unit 1

Renewed Facility Operating License No. DPR-63

NRC FORM 366 (04-2017) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Nine Mile Point Unit 1	05000220	1 OF 4

4. TITLE

Manual Reactor Scram due to Pressure and Power Oscillations

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	N/A
04	29	2019	2019	- 003	- 01	06	28	2019	FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
N	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
084	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Brandon Shultz, Site Regulatory Assurance Manager	(315) 349-7012

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	JJ	RG	GE	Y	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO		N/A	N/A	N/A

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On April 29, 2019 at 16:33, Nine Mile Point Unit 1 inserted a manual reactor scram due to pressure and power oscillations. The High Pressure Coolant Injection (HPCI) System automatically initiated, on low reactor vessel water level, as designed. This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) as any event or condition that resulted in a manual or automatic actuation of any of the systems listed in 10 CFR 50.73(a)(2)(iv)(B).

The cause of the event is the organization did not effectively incorporate appropriate learnings from previous NMP events and operating history that would have provided adequate flexibility in the operating strategy to mitigate the risks of increased oscillations. The scope of the corrective actions is to incorporate operational history and events into Special Operating Procedures (SOPs)

The event described in this LER is documented in the plant's corrective action program.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Nine Mile Point Unit 1	05000220	2019	- 003	- 01

NARRATIVE

I. DESCRIPTION OF EVENT

A. PRE-EVENT PLANT CONDITIONS:

Prior to the event, Nine Mile Point Unit 1 (NMP1) was in the Power Operating Condition at 84.6% reactor power. Power ascension was in progress.

B. EVENT:

On April 29, 2019, at approximately 16:30, NMP1 experienced oscillations in reactor pressure, level and power during power ascension. A manual reactor scram was inserted when the procedural limits were reached.

The scram resulted in shrink of the water level in the reactor vessel and the low level set point was reached. This resulted in a HPCI initiation as designed.

Nine Mile Point Unit 2 (NMP2) was unaffected by the scram at NMP1.

Operations performed the ENS notification (#54035) required by 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A) for the reactor scram and specified system activations.

This event has been entered into the plant's corrective action program as IR 4244521.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

No other systems, structures, or components contributed to this event.

D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES AND OPERATOR ACTIONS:

The dates, times, and major occurrences and operator actions for this event are:

April 29, 2019
16:29—Control Rod 14-39 withdrawn to position 30 from position 08
16:29—Operators observe reactor power, pressure and level oscillations
16:30—Operator places the feedwater flow control valve in manual to check for controller malfunction
16:30—Operators enter SOP for pressure regulator malfunctions
16:33—Mode switch placed in shutdown
16:33—HPCI initiation due to low reactor vessel water level
16:34—HPCI reset

NARRATIVE

E. METHOD OF DISCOVERY:

This event was discovered by Reactor Operators when the reactor pressure, level and power oscillations were observed in the control room.

F. SAFETY SYSTEM RESPONSES:

All safety systems responded per design.

II. CAUSE OF EVENT:

The organization did not effectively incorporate appropriate learnings from previous NMP events and operating history that would have provided adequate flexibility in the operating strategy to mitigate the risks of increased oscillations. The Nine Mile Point U1 operational strategy did not provide flexibility or incorporate an exit strategy from the oscillation region.

III. ANALYSIS OF THE EVENT:

The reactor scram and specified system activation is reportable under 10 CFR 50.73(a)(2)(iv)(A), as any event or condition that resulted in manual or automatic action of any of the specified systems listed in 10 CFR 50.73(a)(2)(iv)(B).

The non-optimal tuning resulted in EPR pressure control issues in the 80-90% power region during reactor startup that produced reactor pressure, level and power oscillations greater than those allowed without a backup pressure regulator available. A manual reactor scram was inserted per procedure.

All other plant systems performed per design. Plant parameters, other than the pressure, level and power oscillations, remained within normal values throughout the event. There was no loss of offsite power to the onsite emergency buses, the HPCI mode of feed and condensate system initiated as designed on the low reactor water level signal.

Based on the above discussion, it is concluded that the safety significance of this event is low and the event did not pose a threat to the health and safety of the public or plant personnel.

This event does affect the NRC Regulatory Oversight Process Indicator for unplanned scrams per 7000 hours of critical operation.

IV. CORRECTIVE ACTIONS:

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

NARRATIVE

Replaced bean valve and flushed/cleaned MPR sensing line. Tuning of the Turbine Control systems was completed prior to return to service.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

N1-SOP-31.2, "Pressure Regulator Malfunctions" has been revised to allow margin for expected oscillations. SOPs that direct a unit to shutdown or derate will be reviewed and revised as needed to incorporate the lessons learned pertaining to providing appropriate operational flexibility.

V. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

Tuning of the EPR was not optimal. There were no individual component failures.

B. PREVIOUS LERs ON SIMILAR EVENTS:

NMP1 LER 2017-002, submitted May 18, 2017, was due to pressure oscillations at 4% power. The cause of that event was a partial blockage within the MPR sensing line coupled with hysteresis found within the cylinder stroke of the Mechanical Hydraulic Control (MHC) Bypass Relay. The actions to prevent recurrence in 2017 included:

1. Implementation of a two-year preventive maintenance activity for routine flushing and filling of the pressure sensing bellows line and associated piping with contingencies to replace when required.
2. Revision of associated procedures to include steps to flush and backfill sensing lines.
3. Revised the Turbine Trip Test procedure.

These actions do not ensure the EPR is optimally tuned and would not have prevented this event.

C. THE ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) COMPONENT FUNCTION IDENTIFIER AND SYSTEM NAME OF EACH COMPONENT OR SYSTEM REFERRED TO IN THIS LER:

COMPONENT	IEEE 803 FUNCTION IDENTIFIER	IEEE 805 SYSTEM IDENTIFICATION
Reactor Pressure Vessel	RPV	AD
Feedwater Level Control System	N/A	JB
High Pressure Coolant Injection System	N/A	BJ
Reactor Protection System	N/A	JC
Turbine Control System	N/A	JJ
Electronic Pressure Regulator	RG	JJ